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## ABSTRACT

Transgenic flies displaying altered phenotypes due to expression of the Abeta and C99 portions of the human *APP* gene are disclosed. Use of these flies in a method to identify *Drosophila* genes and the human homologs of these *Drosophila* genes, that are potentially involved in Alzheimer's Disease, is also disclosed. The use of said human homologs as drug targets for the development of therapeutics to treat Alzheimer's Disease and other conditions associated with defects in the APP pathway, as well as pharmaceutical compositions comprising substances directed to these genes, are also disclosed.

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